Massachusetts Natural Heritage Program

Natural Heritage & Endangered Species Program
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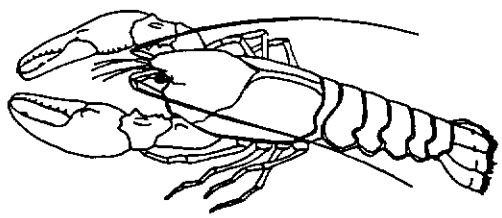
MASSACHUSETTS RARE AND ENDANGERED WILDLIFE

Cambarus bartonii
Appalachian brook crayfish

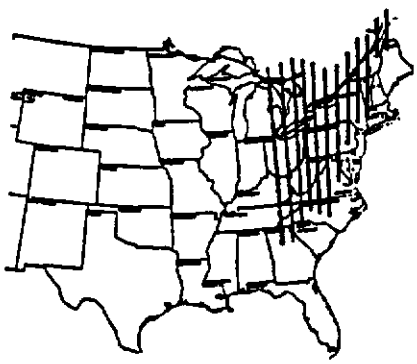
DESCRIPTION The Appalachian brook crayfish (ABC) is a medium sized (150 mm in total length) crayfish in the crustacean Order Decapoda without any particular or outstanding markings. Adults tend to be a uniform brownish-tan color, varying to reddish-brown in older adults. Juveniles are usually lighter colored. The tips of the claws and the rostrum (a projection between the eyes) margins in older adults can be purplish-red. Cambarus bartonii can be most easily separated from other crayfish in Massachusetts by the shape of the rostrum, which is quite broad, short, and blunt, with only a short acumen (point) produced anteriorly. Males and females are distinguished by the presence in males of highly modified pleopods (abdominal appendages) on the first two abdominal segments. The pleopods are unmodified in females. The tips of the first pair of pleopods in males are flattened and sharply bent.



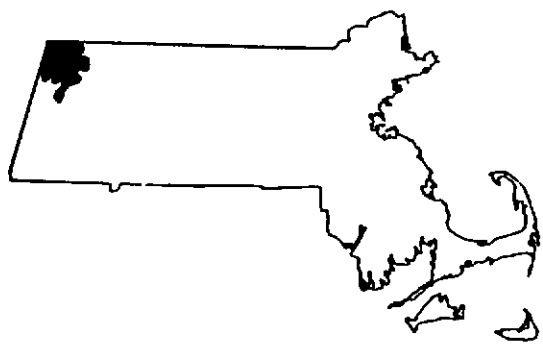
DG Smith, 1988

SIMILAR SPECIES One other species of crayfish in Massachusetts, Cambarus robustus, is similar to C. bartonii. Cambarus robustus is not native to the state and occurs in scattered drainages outside the range of C. bartonii in Massachusetts. In C. robustus, the rostrum is longer, narrower, and the acumen is more pronounced and the species reaches a larger size than C. bartonii. Other more subtle but distinct features separate C. robustus from C. bartonii and these can be determined from any established identification guide.

RANGE The ABC is widely distributed throughout eastern North America except in coastal regions and interior New England. In Massachusetts the



RANGE



Shaded Portion Represents
Breeding Distribution in Massachusetts

1989

species is confined to the Hoosic River drainage system in the northwestern part of the state.

HABITAT IN MASSACHUSETTS In Massachusetts, the ABC is typically found in upland and mountain streams, reaching an altitude of about 1550 feet (470 m). It occurs less comonly in unaltered sections of the Hoosic River where there is moderate to strong current. The species tunnels under large rocks and boulders which are well imbricated in the substrate in mid-stream and along the bank.

LIFE HISTORY The ABC is quite secretive and little has been learned of its life history. Breeding probably occurs anytime adults of either sex encounter one another. Not all fully grown males can engage in sexual activity at a specific time because males of all species in the family Cambaridae undergo cyclic changes in the reproductive morphology. During the inactive phase, the sexual organs of the male are reduced and become non-functional. Once breeding has occurred, females become very inactive and find a location that will successfully conceal them during the egg-laying and brooding period. A small number (50 - 60) of large eggs are laid by the female and attached to the underside of her abdomen. Following hatching, the young remain attached to the mother through a few molts until dispersed by her by active flipping of the abdomen. Young of the year crayfish have been observed throughout the summer.

POPULATION STATUS AND LIMITING FACTORS The ABC is restricted for the most part to upland streams in the hills surrounding the Hoosic River. Because the Hoosic River has been altered considerably by man and is periodically subjected to various types of pollution, the river can no longer, except for one short suitable section, support this species. As a result, the upland stream populations are in effect isolated from one another and subject to the potentially unfavorable consequenses of a reduced gene pool. Other threats to its survival in the state include alterations and damming of inhabited streams, and pollution originating from adjacent residential and commercial properties. In the single section of the Hoosic River known to be inhabited by the ABC, an introduced crayfish, Orconectes virilis, has similar burrowing habits and may compete with the ABC for habitat space.